

AMENDMENTS TO THE CLAIMS

1. (currently amended) A reflective article, comprising:

a substrate comprising an amorphous thermoplastic resin having

a heat distortion temperature of at least about 140°C measured at 66 pounds per square inch according to ASTM D648,

a density less than 1.7 grams per milliliter, and

an organic volatiles content less than 1,000 parts per million measured according to ASTM D4526;

wherein the amorphous thermoplastic resin is selected from polyetherimides, polyetherimide sulfones, polysulfones, polyethersulfones, polyphenylene ether sulfones, poly(arylene ether)s, polycarbonates, polyester carbonates, polyarylates, and mixtures thereof;

a reflective metal layer; wherein the reflective metal layer comprises a metal selected from aluminum, silver, gold, nickel, palladium, platinum, copper, and alloys thereof; wherein the reflective metal layer has a thickness of at least 20 nanometers;

a haze-prevention layer interposed between the substrate and the reflective metal layer, wherein the haze-prevention layer comprises a material having a volume resistivity of at least 1×10^{-4} ohm-centimeters measured according to ASTM D257 at 25°C and a tensile modulus of at least about 3×10^5 pounds per square inch measured according to ASTM D638 at 25°C; wherein the haze-prevention layer comprises a plasma-polymerized organosilicone; and

a protective layer comprising the plasma decomposition product of an oxidant and a reactant gas selected from silanes, disilanes, and organosilicon compounds; wherein the reflective layer is interposed between the haze-prevention layer and the protective layer;

wherein the protective layer is in contact with the reflective metal layer;

wherein the reflective metal layer is in contact with the haze-prevention layer; and

wherein the haze-prevention layer is in contact with the substrate.

2-3. (canceled)

4. (original) The reflective article of Claim 1, wherein the substrate is substantially free of inorganic filler.

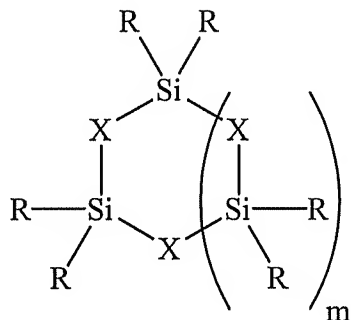
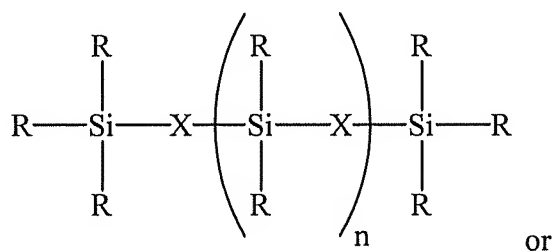
5. (previously presented) The reflective article of Claim 1, wherein the substrate has a thickness of about 0.1 to about 20 millimeters.

6. (canceled)

7. (original) The reflective article of Claim 1, wherein the reflective metal layer comprises aluminum.

8-9. (canceled)

10. (previously presented) The reflective article of Claim 1, wherein the organosilicone has the formula



wherein each occurrence of R is independently hydrogen, C₁-C₆ alkyl, C₂-C₆ alkenyl, C₃-

C₆ alkenyl alkyl, or C₆-C₁₈ aryl; n is 0 to 100; m is 1 to 100; and X is -O- or -NH-.

11. (previously presented) The reflective article of Claim 1, wherein the organosilicone is octamethyl(cyclotetrasiloxane), hexamethyl(cyclotrisiloxane), tetramethyldisiloxane, hexamethyldisiloxane, octamethyltrisiloxane, vinyltriethoxysilane, vinyltrimethoxysilane, cyclotetra(methylvinylsiloxane), cyclotri(methylvinylsiloxane), hexamethyldisilazane, or a mixture thereof.

12-14. (canceled)

15. (original) The reflective article of Claim 1, wherein the haze-prevention layer has a thickness of about 100 nanometers to about 100 micrometers.

16. (previously presented) The reflective article of Claim 1, wherein the protective layer has a percent transmittance of at least 90% measured according to ASTM D1003 at 25°C.

17. (original) The reflective article of Claim 1, comprising a surface with a reflectivity of at least 80% measured according to ASTM D523.

18. (original) The reflective article of Claim 1, wherein the article is an automotive headlight reflector.

19. (currently amended) A reflective article, consisting essentially of:

a substrate comprising an amorphous thermoplastic resin having

a heat distortion temperature of at least about 140°C measured at 66 pounds per square inch according to ASTM D648,

a density less than 1.7 grams per milliliter, and

an organic volatiles content less than 1,000 parts per million measured according to ASTM D4526;

wherein the amorphous thermoplastic resin is selected from

polyetherimides, polyetherimide sulfones, polysulfones, polyethersulfones, polyphenylene ether sulfones, poly(arylene ether)s, polycarbonates, polyester carbonates, polyarylates, and mixtures thereof;

a reflective metal layer; wherein the reflective metal layer comprises a metal selected from aluminum, silver, gold, nickel, palladium, platinum, copper, and alloys thereof; wherein the reflective metal layer has a thickness of at least 20 nanometers;

a haze-prevention layer interposed between the substrate and the reflective metal layer, wherein the haze-prevention layer comprises a material having a volume resistivity of at least 1×10^{-4} ohm-centimeters measured according to ASTM D257 at 25°C and a tensile modulus of at least about 3×10^5 pounds per square inch measured according to ASTM D638 at 25°C; wherein the haze-prevention layer comprises a plasma-polymerized organosilicone; and

a protective layer comprising the plasma decomposition product of an oxidant and a reactant gas selected from silanes, disilanes, and organosilicon compounds; wherein the reflective layer is interposed between the haze-prevention layer and the protective layer;

wherein the protective layer is in contact with the reflective metal layer;

wherein the reflective metal layer is in contact with the haze-prevention layer; and

wherein the haze-prevention layer is in contact with the substrate.

20. (canceled)

21. (currently amended) A method for preparing a reflective article, comprising:

applying a haze-prevention layer to a surface of a substrate;

wherein the haze-prevention layer comprises a material having a volume resistivity of at least 1×10^{-4} ohm-centimeters measured according to ASTM D257 at 25°C and a tensile modulus of at least about 3×10^5 pounds per square inch measured according

to ASTM D638 at 25°C; wherein the haze-prevention layer comprises a plasma-polymerized organosilicone; and

wherein the substrate comprises an amorphous thermoplastic resin having a heat distortion temperature of at least about 140°C measured at 66 pounds per square inch according to ASTM D648, a density less than 1.7 grams per milliliter, and an organic volatiles content less than 1,000 parts per million measured according to ASTM D4526; wherein the amorphous thermoplastic resin is selected from polyetherimides, polyetherimide sulfones, polysulfones, polyethersulfones, polyphenylene ether sulfones, poly(arylene ether)s, polycarbonates, polyester carbonates, polyarylates, and mixtures thereof;

applying a reflective metal layer to a surface of the haze-prevention layer; wherein the reflective metal layer comprises a metal selected from aluminum, silver, gold, nickel, palladium, platinum, copper, and alloys thereof; wherein the reflective metal layer has a thickness of at least 20 nanometers; and

applying a protective layer to a surface of the reflective metal layer; wherein the protective layer comprises the plasma decomposition product of an oxidant and a reactant gas selected from silanes, disilanes, and organosilicon compounds; and wherein the reflective layer is interposed between the haze-prevention layer and the protective layer.

22. (previously presented) The method of Claim 21, wherein the protective layer has a percent transmittance of at least 90% measured according to ASTM D1003.

23. (canceled)